The Riddle of the Limited Liability Corporation

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In this paper we explain why, despite both the complete private ownership of a corporation and the complete absence of any government regulatory controls, the state remains ever present in the corporate calculations of the investment and operating strategies that will maximize the shareholders' profits. Our analysis draws out explicitly one of the commonly ignored characteristics of the limited liability corporation: that the state is a residual claimant and will, in some circumstances be forced to assume certain liabilities created by the firm's shareholders. We argue that this off-balance sheet liability held by the state needs to be properly managed if the prerogative of the shareholders to make the investment decisions of the firm is to serve the common welfare.

The proper management of this liability is entirely consistent with the objective of privatization in so far as the management of the firm is expected to be subject to the discipline of the marketplace and to maximize productive efficiency. However, the proper management of this liability requires an acknowledgement of the fact that even a privatized corporation retains an important relationship to the state, and many forms of state control or restrictions on the firm's operations are a matter of proper business conduct and can in no way be interpreted as government interference with the marketplace or government regulations of the firm.
The corporation, even a completely privately owned corporation, must always be operating in the shadow of the state. Models that ignore this shadow are deceptive. Our thesis does not necessarily negate the many legitimate arguments in favor of privatization, although it does impose stricter standards for assessing them. In this paper we seek to draw out the possible alternative ways in which the state’s relationship to a private corporation can be fashioned and to thereby aid in designing beneficial privatization models as opposed to foolhardy ones. The tools that we propose for the management of the corporation’s liability to the state should be seen as component elements of the privatization of the firm along with the sale of the shares and should not be seen as a compromise with the objectives of privatization.

Conflicts of Interest and the Corporate Form of Ownership

The right-hand side of the corporate balance sheet is a listing of the various claims outstanding on the corporation’s future cash flows. The holders of these liabilities, the firm’s claimants, are typically many and diverse. Included, of course, are the firm’s shareholders as well as the owners of the firm’s outstanding bonds and private loan agreements. Also included are the suppliers that have extended commercial credit and the unions and employees with whom pension obligations have been negotiated. The list of claimants includes any persons or institutions that have successfully prosecuted court claims for damages incurred from the corporation’s operations and customers that have made advance payments on long-term supply contracts.

The investment and operating decisions made by the management of the firm affect the value of the liabilities held by every claimant. The
management of the firm is accountable, however, primarily to one of these claimants--the shareholders. The management chooses the investment and operating strategy that will maximize the return to the shareholders. Under many circumstances the decisions made in the interest of the shareholders will correspond to the decisions that maximize the return to the firm as a whole or they will correspond approximately. This correspondence, of course, underlies the socially beneficial character of this system of ownership. However, under some circumstances this correspondence will not hold. The decisions that maximize the return to the shareholders may differ significantly from the decisions that maximize the return to the firm as a whole. The shareholders or their management will naturally make the decisions that maximize the return to the shareholders, and consequently they must choose an investment program that sacrifices the expected return to the various other claimants on the firm's cash flows. Recent research in the field of corporate finance has established that this potential conflict of interest is central to the initial design of the various liabilities of the corporation and to the determination of the corporate financial structure. The proper management of this potential conflict of interest is central to the efficient employment of the assets invested in the corporate sector.

An early textbook statement of the problem appears in Fama and Miller (1972; p. 179) At the time, however, these authors and others did not suppose that this conflict was of much practical consequence. Subsequent research, in contrast, has asserted its general importance: See Jensen and Meckling (1976), Myers (1977), Miller (1977), Smith and Warner (1979), and Stiglitz and Weiss (1981). Some empirical evidence for the importance of
the conflict in determining a corporation's capital structure is contained in Williamson (1981) and Long and Malitz (1985).

A large number of distinct examples of this conflict of interest have been documented, but two basic categories encompass most of the important cases.¹ The first category of conflicts arises because of the different nature of debt and equity contracts. Because a debt contract specifies a fixed payment regardless of the firm's profitability, the creditor's claim does not increase in value with a rise in the firm's profits. The firm's shareholders enjoy all of this upside risk. On the other hand, despite the fixed payment specified in the debt contract, if the firm's earnings are inadequate to cover the debt obligation, then the value of the creditor's claim will be reduced. Because of the limited liability character of the corporation the equity owners cannot be required to make up the difference. The creditors do not share in the upside risk of the firm but do share in a portion of the downside risk. Absent the debt obligations the shareholders would bear the full risk of the firm's operations. When, however, the firm has large debt obligations outstanding, a portion of the downside risk assumed by the firm is borne by the creditors. Since the shareholders do not fully bear the additional risk that will follow from the choice of a particular investment strategy, they may find it in their interest to choose this riskier strategy although the additional return to the firm as a whole is not sufficient to warrant the additional risk.

The second category of conflicts arises for similar reasons. Any new projects that the firm assumes will necessarily change the risk and return characteristics of the firm's entire portfolio of projects. A new project

¹ These cases are presented in most modern corporate finance textbooks: see for example, Brealey and Myers (1988; pp.421-432), Ross and Westerfield (1988; pp. 338-340), or Copeland and Weston (1983; pp. 445-447).
with a guaranteed profit will both increase the total return to the firm and lower the total risk. Nevertheless, it may not be in the interest of the shareholders to pursue this project if it requires that the shareholders contribute additional equity. Since the new project increases the probability that the debt obligations will be paid in full, the debtholders will enjoy much of the return earned by the new project. The shareholders, however, will bear the full cost of the investment required. Unless the extra return on the project is sufficiently large that the shareholders' portion of the return covers the full cost of the project, the project will not be pursued by the shareholders.

A special case of this category of conflicts involves the shareholders taking cash out of the firm too early, even if that requires liquidating important projects of the firm or selling off key assets. By paying a larger dividend or by repurchasing shares of the firm, the equity owners obtain with certainty the price of the assets sold. Although the probability of future poor performance is increased by this decision, this cost is borne in part by the creditors who find that the firm has a higher probability of defaulting on the debt obligations.

The conflict of interest between shareholders and creditors is inherent in the structure of the corporation. It is not a consequence of poorly written contracts nor of bad management, but rather follows directly from the definition of the two different types of securities. Creditors do not make the operating and investment decisions of the firm. The shareholders make these decisions, and they do so in their own interests. The interests of the creditors and the shareholders will not always be the same because by design debt and equity contracts claim different shares of the firm's risk and of the firm's return. The marginal costs and benefits of a given
line of investment or operating decisions are not fully borne by the shareholders and hence they do not make the investment or operating decision that maximizes the value of the firm as a whole. Unless the choices available to the shareholders are sufficiently constrained, the interests of the creditors will in some instances be sacrificed.

Of course, creditors of the corporation do not ignore the dangers of these conflicts of interest and they therefore negotiate the credit contracts with the shareholders in anticipation of the possibility that a conflict may arise. Included in the rate of interest charged by the lenders is a payment necessary to compensate them for the probability that in certain circumstances their interests will be sacrificed. If they expect that this conflict will arise with greater probability, then they will require a greater increase in the interest rate. Second, they impose conditions on their loans and restrictions on the set of possible choices on the part of corporate management that make the occurrence of this conflict less likely or that prevent the management from sacrificing the interest of the creditors when the conflict does arise. Agreeing to these restrictions ex ante is also in the interest of the shareholders. The restrictions force the management to choose investments that more approximately maximize the value of the firm as a whole; as a consequence, the payment that must be promised to the creditors is lowered sufficiently that the shareholders also benefit on average from the improved investment strategy for the firm. However, it is never possible to completely eliminate the dangers of this

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2 Wolfson (1985) documents that various factors affecting the degree of security for the investors against the management's exploitation of the conflict of interest are priced in U.S. oil and gas tax shelter partnerships.
conflict nor to completely restrict the discretion of the shareholders to exploit it in their own favor.

The conflict of interest between the firm's shareholders and its creditors has received most of the attention in the corporate finance literature, but a large number of other, quite analogous, conflicts of interest have also been documented and analyzed. These include the conflict between the firm's original shareholders and potential buyers of new issues of the firm's stock--Myers and Majluf (1984)--and the conflict between the firm's original shareholder's and a potential corporate partner in joint or coordinated production--Williamson (1975) and Klein, Crawford and Alchian (1978). They also include the conflict that may arise between the management of the firm and the large number of passive shareholders--Jensen and Meckling (1976). A conflict of interest can also arise between one set of creditors and another set of creditors and this conflict of interest is an important factor informing the design of bankruptcy legislation--Bulow and Shoven (1978).

On the Balance Sheet and Off

A great amount of misunderstanding is created and mischief is done when people accept the listing of assets and liabilities displayed on a standard accounting sheet as a full listing of persons with a claim to the firm's cash flows. Although the corporate balance sheet aims to include all of the assets that will be generating income for the firm and all of the liabilities that have a claim on that income, a large number of economically relevant assets and liabilities are, by convention, not included in the standard balance sheets. Even if the firm is commonly referred to as being '100% equity owned,' there actually exist a large
number of off-balance sheet liabilities that belie the accuracy of the terminology. The off-balance sheet creditors have a stake in the firm whether or not they appear on the balance sheet or own a share of the equity.\(^3\)

For example, under U.S. accounting practice it was long possible for a corporation to negotiate with the members of its unions a pension obligation without at the same time acknowledging that commitment on the balance sheet. Consequently an examination of the balance sheet might yield a false picture of the value of the firm's equity, showing a corporation with significant assets and a small number of debt obligations. If the net obligation to pay the pension were added to the corporation's liabilities, then the value of the equity would be correspondingly reduced. A good case in point is General Motors whose 1982 balance sheet did not include the $14.4 billion in assets that had been put aside to fund the employee pension plans although these assets were worth two-thirds of the book value of all of General Motor's plant and equipment. The balance sheet also omitted the estimated $16.3 billion in pension liabilities owed to the employees, a liability that was four times the book value of all of GM's other long-term debt. The pension liabilities exceeded the pension assets by $1.9 billion. GM's equity was valued in the balance sheet at $18.3 billion. If the pension obligation had been acknowledged in the balance sheet, then the quoted value of the equity would have dropped to $16.4 billion.

\(^3\) Shleifer and Summers (1988) point out that incorporating the consequences of off-balance sheet stakeholders in the firm is essential to the proper assessment of the welfare consequences of hostile takeovers. They are critical, therefore, of studies that focus exclusively upon changes in shareholder returns as a consequence of takeovers in order to measure the welfare effects.
The exclusion of a given class of assets or liabilities is often made for perfectly sensible reasons. In many cases, for example, it is impossible to identify any verifiable basis for assigning a value to the anticipated return from an asset, and it is therefore impossible to develop a standard method for including the type of asset on the balance sheet. In other cases the difficulty may not be insurmountable, but the otherwise hidden assets are assumed to be too small to justify the effort necessary to establish a standardized practice.

Of course, standard accounting practices evolve in response to changing circumstances, and a given class of assets or liabilities that had, as a rule, previously been excluded from the firm’s balance sheets may in time become a common or even a required feature of the balance sheet. In 1985 the Financial Accounting Standards Board passed Statement No. 87 requiring that a firm acknowledge on its balance sheets the difference between the assets in the pension plan and the expected liability. There remain, however, a large set of assets and liabilities that still have not found their way onto the balance sheets. For example, health care benefits negotiated by a corporation’s employees are still not included on the standard balance sheet, although the FASB is currently debating proposals for mandating their inclusion.

The conflicts of interest that arise between the firm’s shareholders and its on-balance sheet creditors also arise between the firm’s shareholders and its off-balance sheet creditors. Whether or not the creditor’s claim appears on the balance sheet is immaterial. A conflict of interest may arise between the shareholders and any stakeholder in the firm. The investment and operating strategy that maximizes the profits of the
shareholders will, under certain circumstances, significantly sacrifice the interests of one or another of the stakeholders.

Unions that have negotiated pension agreements with a firm are creditors to the firm regardless of whether or not the firm lists the pension agreement as a liability. The union’s pensioners face a risk of non-payment in the event of a bankruptcy or reorganization just as does any other creditor. The integrity of the firm’s promise of a secure pension is dependent upon the riskiness of the firm’s assets and the union workers therefore possess an interest in the riskiness of the firm’s investment program. Hence, the union’s pensioners also face all of the dangers of a conflict of interest that confront a typical bank lending funds to the firm. Under some circumstances the shareholders will pursue a risky investment strategy that raises the value of their equity at the cost of the pension liability held by the union and the liabilities held by other creditors.

The case of employee pension plans has made clear the danger of this type of gaming. Many corporations in the United States did either go bankrupt or terminate their pension plans without having adequate resources to pay the promised benefits, and so in 1974 the U.S. created a government pension insurance corporation, PBGC, to guarantee employees the pensions that are negotiated. The cost of the insurance is financed by a charge to the corporations operating the pension plans. In some cases, therefore, it is the PBGC instead of the employees that now bears much of the losses from an underfunded pension plan that is terminated. The losses born by the PBGC from a single termination can be large. In 1985 it had to pay $650 million for the pension plans of Allis-Chalmers and Wheeling-Pittsburgh Steel. The recent LTV Steel bankruptcy threatened the PBGC with a $2 billion liability.
The creation of the government pension insurance corporation did not eliminate the conflict of interest between the shareholders and the pensioners, but instead shifted it to a conflict between the shareholders and the PBGC. In one important case, the shareholders were accused of exploiting this conflict illegally. The International Harvester Corporation sold its Wisconsin Steel Subsidiary shortly before that subsidiary went bankrupt. The cost of the unfunded pension liability was put to the government's insurance company. The PBGC sued the International Harvester Corporation claiming that they had divested of the subsidiary in order to evade the cost of the unfunded pension liability.

The Riddle of the Limited Liability Corporation: Who is the Residual Claimant

In the standard analysis of the corporation the equity holders are modelled as the residual claimants to the firm. That is to say, given any realization of the firm's random future cash flows, it is the list of creditors that maintain prior claims on those cash flows while the shareholders receive only what is left over. If, for example, the management of the firm mistakenly invests a portion of the firm's retained earnings in an unprofitable venture, then the marginal reduction in the total profits of the firm is felt by the firm's shareholders. As long as the other assets of the firm continue to generate enough cash to allow the debt obligations to be serviced, then the value of the debt is unaffected. If, on the other hand, the management of the firm successfully invests the retained earnings in a highly profitable venture, then the marginal contribution to the firm's profits will accrue exclusively to the
shareholders. The value of the shareholders' claim rises and falls with marginal changes in the firm's profits.

Labelling the shareholders as the residual claimant because they are the bearers of marginal variations in the firm's value is, however, incorrect. The label only seems to make sense if we focus our attention exclusively upon management decisions that simply increase or decrease the firm's expected profits, and this only marginally. As soon as it is acknowledged that the firm's investment program is characterized by risk as well as by the mean profit level, then even marginal changes in the investment program do not impact the value of the shareholders' claim alone. When the management chooses a riskier investment strategy, the value of the shareholders' claim may in fact be relatively unaffected while that of the creditors may fall, as we explained earlier. In this case it is the creditors who are the bearers of the marginal change in the firm's value.

The mistake of identifying the shareholders as the residual claimant has been laid bare in models that apply the terminology and techniques of option pricing to the valuation of the corporate liabilities--see Black and Scholes (1973). In this set of models, the firm as a whole is considered the underlying asset on which options are written, and the various financial claims including debt and equity are valued as these various options. The shareholders of a firm with no debt outstanding own the underlying asset itself. The shareholders of a firm with debt outstanding own a call option on the underlying assets with an exercise price equal to the promised payment on the bonds. The bondholders own the underlying assets and have sold a call option on them with an exercise price equal to the promised payment. The conflicts of interest between the shareholders and the creditors are illustrated in this literature with reference to how a change
in the parameters describing the firm's assets affect the values of the options held by each claimant. The shareholders and the bondholders, as buyer and seller of the call option respectively, have conflicting interests as regards the riskiness or volatility of the underlying asset. The value of the firm's stock--itself actually a call option on the firm--is positively related to the risk of the firm's assets, and the value of the firm's debt--the writer of the call option on the firm--is negatively related to the risk of the firm's assets. This set of models abandons the concept of the equity holders as the sole bearers of the marginal changes in the value of the firm. Indeed, in these models it is the bondholders who actually 'own' the underlying asset, the firm, while the shareholders only own an option that yields them the upside of the firm. All variations in the probability distribution describing the firm's future profit that occur below the level of the promised payment on the firm's debt are variations in the expected value of the debt claim. Of course, variations in the probability distribution describing the firm's future profits that occur above the value of the promised payment are variations in the expected value of the equity claim. In these models, then, the concept of the shareholders as the exclusive residual claimant is replaced by the concept of both the shareholders and the creditors as residual claimants, each in part.

But while these models have improved the degree of sophistication of our conception of the residual claimant to the firm, they remain inadequate because they ignore the most important character of the modern corporation--limited liability--and the essential reasons why this juridical creation was such an important innovation. Just as the earlier concept ignored the danger of the downside risks that would threaten the full payment on the debt, so too the more modern models ignore a portion of the downside risk--
the extreme downside risk. If the firm's fortunes decline moderately, then the shareholders' claim is the first to be reduced. If the firm's fortunes decline significantly, then the creditors' claim is reduced. The standard finance models stop there. Suppose, however, that we speculate on the consequences of a yet greater loss for the firm. What happens when the firm's operation creates a huge liability, larger than the value of the paid in capital and the assets of the firm? Who pays for that loss? The definition of the limited liability corporation tells us that the equity owners cannot be liable for any amount beyond their originally paid in capital. And the many recorded creditors to the corporation have put at risk nothing more than the original principal that they have lent or forwarded to the firm. So who pays for the loss?

The scenario posited in the question is not admitted in the option models nor in most other models currently popular in the academic finance literature. In these models the value of the firm is typically represented as a random variable described by, for example, the lognormal distribution. This distribution has a range that is bounded below. The lower bound is fixed as the sum of the paid in capital of the equity holders and the capital extended by all recorded creditors. The possibility for a loss greater than this paid in capital or a loss of an unbounded value is not admitted in the assumptions of these models. This possibility could, of course, potentially be incorporated into the mathematical models. To do so, however, would require specifying exactly who pays for the losses of various sizes when they exceed the corporation's paid in capital and the principal forwarded by the creditors of record. But this is precisely the question being posed here: who pays for such a loss?
To make the question concrete we need only turn our attention to an example that could have been drawn from any number of newspaper stories making their appearance with regularity in the United States today. Consider a corporation that has profitably operated a chemical processing plant for a period of fifty years. Over the fifty years it has paid a regular dividend to its many and constantly changing shareholders. It has incurred and gradually retired many debts. Currently, however, due to a change in the industry’s technology base the corporation no longer expects its plant to be competitive. The corporation therefore plans to close the plant and liquidate. It plans to sell the land and buildings and make final payments on its debt and then make a final liquidating dividend to its current shareholders. At this time the community discovers that in the course of the fifty years of operation the firm has contaminated the ground on which the plant had been located with toxic chemicals. The contamination may extend to the entire surrounding neighborhood. Perhaps the chemicals have long been the cause of health problems for the neighboring residents or for the workers at the plant.

A new set of liabilities must now be entered onto the firm’s books. These new liabilities may exceed in value the remaining assets in the firm. The cost of a cleanup of the property itself may exceed the entire remaining capital in the firm. The cost of lawsuits and settlements with the neighboring residents for the depressed property values or with residents and former workers for the costs of health care may exceed that capital many times. Who will pay for the clean-up of the land on which the

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4 These liabilities may actually appear on the firm’s books, i.e., become on-balance sheet liabilities, if as a result of a court suit the firm becomes obligated to make payment on them. Otherwise they remain off-balance sheet liabilities, but recognizeable liabilities nonetheless.
plant is located? Who will pay for the clean-up of the properties in the surrounding neighborhood? Who will pay for the provisions necessary to secure a new safe water supply for the community? Who will pay for the health problems of the residents? All of these questions are just so many ways to pose in the concrete the riddle of the limited liability corporation: who is the residual claimant on the extreme downside?

The answer to the question, of course, may be as varied as the actual situation. The corporation is bankrupt and cannot pay these bills, and yet the bills must be paid. In some cases it will be the local state institutions that will bear the expense of cleaning up the grounds on which the plant was located. These state institutions and their officers may be legally obligated to remedy the public danger presented by the contamination. Each individual landholder in the neighborhood may be forced to cover the costs of cleaning up its own piece of land. The workers may have to cover the cost of their own health care bills: or they may simply be left untreated or die an early death. In other cases the workers may have health insurance and cost of the medical care will be borne by the insurance company.

The first incidence, the individual that most immediately must resolve the problem and make a payment to receive a compensatory service, appears as

5 A case analogous in some ways to our fictitious example made its way to the U.S. Supreme Court in 1985. The Chem-Dyne Corporation of Hamilton, Ohio had been ordered by Ohio state officials to clean up a hazardous and industrial waste deposit site that they operated. When the officers of the corporation repeatedly failed to comply, the state took control of the company and attempted to seize control of the personal assets of the officers. The corporation's officers were able to avoid paying for the clean-up costs since under the bankruptcy law the liability created was ranked simply as a normal debt and the liquidated corporation was unable to make payments on all of the debt: the officers themselves, guilty of failing to comply with the earlier clean-up orders, could not be forced to pay. The cost of the clean-up fell on the state.
a random event. The whole disaster is an unexpected and unplanned event. Those stricken did not freely contract with the firm and put themselves at risk. The liability that they now must bear was not freely negotiated and accepted. The loss that they bear amounts to a seizure of their property or an assault on their person, but the criminal has disappeared. And this is precisely the nature of the limited liability corporation. It empowers the corporation to operate its business and unilaterally incur certain liabilities that, under some circumstances, it will not be able to pay. In those circumstances the liabilities are put to various persons, many of whom had no explicit contractual relations with the firm. So the residual claimant of the firm is, in the case of such a disaster, not the shareholders at all. Nor is it the creditors of record. The residual claimants are the many members of the community--persons, private corporations and state institutions--forced to assume the liabilities.

Prior to the discovery of the contamination these persons were not acknowledged as holders of liabilities. However, they were at all times stakeholders in the firm. In the course of the firm's many years of operations countless decisions were made that determined the possible size of the liabilities held by these persons or institutions and the likelihood that the liability would be paid in full. But only with the realization of the disaster are they recognized as interested parties or parties with standing.

The parties who in this event are the residual claimants are diverse and their identities depend upon the particular event that has caused the firm's bankruptcy. One of these parties, however, deserves to be singled out as the primary residual claimant, both common across all events and also the locus for most negotiations over a reallocation of the burden imposed by
the firm on the many parties. That party is the state. In a large number of cases, it will be the state that will be petitioned to bear the costs imposed on the community by the defunct corporation. The state will be asked to pay for the clean-up and for the health care costs. Even when the state itself is not directly petitioned to bear the costs, it will be forced to intervene in the negotiations for the reallocation of the burden and for the reshaping of the interests and programs of nearby businesses. This is so for at least three reasons.

First, the state is the focus of decision making and for management of a public crisis. And a contaminated waste sight abandoned by the corporation that created it is such a public crisis, as might be any other similar corporate bankruptcy. In a democratic society the community as a whole must decide how to resolve the crisis, and that means that the state, the focal point and channel for democratic action, will many times be the agent that is assigned the task of clean up or of other solutions to the crisis.

Second, the definition of the private corporation, as I have mentioned above, restricts its obligations. The equity holders are not responsible beyond the initial capital that they have contributed. Similarly for all other private corporations in the community: they have been chartered for a certain purpose and with limited responsibility. In a sense the definition of a crisis is 'a task that is extraordinary and outside of the responsibility of any of these chartered institutions.' But the crisis cannot be nobody's responsibility. It becomes the responsibility of the state by the nature of the limited liability of all of the private corporations, by the default of each of these other parties. So by creating the institution of the private corporation with limited liability the state
simultaneously creates and accepts for itself a contingent liability: the responsibility for all of those consequences of the corporate activity that exceed the limited liability with which the state and the community endow the private corporation. It is the state that becomes the residual claimant when it creates the limited liability corporation.

Finally, the moment of crisis creates an important collective choice problem. The first incidence of cost created by the disaster may yield an inefficient set of claim. For businesses adversely affected the sudden expense or sudden losses may imperil their own operation. For private citizens the sudden expense may imperil their standard of living or their health or their access to work. The individuals who must bear the first incidence of the cost may be unable to satisfactorily adjust. It may be in the common interest of the community to reallocate the costs in a different fashion and it will be the role of the state to adjudicate and administer at least a portion of this reallocation. In any case, an intense negotiation ensues to determine who shall pay for what, and to determine how the various businesses and communities affected shall adapt their own operations and lives to the new circumstances.

So the answer to the riddle becomes clear: it is the state, either as the direct bearer of the financial responsibility or indirectly as the arbiter of financial responsibility, that in some cases becomes the residual claimant of the limited liability corporation.  

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6 An interesting case directly related to the issues here is the passage in the U.S. of the Price-Anderson Act. Manufacturers and operators of nuclear power plants received extra limitations against the possible liabilities created by their operations. In this case not even the full amount of paid in capital would be lost. The express purpose of this legislation is to encourage the investment in a technology that otherwise might be deemed too risky to for the shareholders. The extra investment is effectively subsidized by all of the persons, corporations, and state institutions that in the event of such a disaster would be unable to make
The Conflict of Interest Between the Corporation and the State

The pieces have been laid, then, for an understanding of the sense in which the private corporation can never be free of a relationship to the state. To summarize, the three pieces are: (i) holders of different claims on the firm's risk and return will rank differently the alternative investment decisions of the firm, and under certain circumstances the shareholders will choose an investment program that sacrifices the value of the firm as a whole because it maximizes the value of the shareholders' claim; (ii) there exist many holders of liabilities that do not appear on the standard balance sheet of the corporation and a conflict of interest between the shareholders and these off-balance sheet liability holders may also arise; and (iii) the state is one such holder of an off-balance sheet liability. When we bring these pieces together it becomes clear that between the shareholders and the state there may also arise, under certain circumstances, a conflict of interest, and the shareholders will pursue an investment program that maximizes their own return at the cost of the state's increased liability.

The firm's management incorporates into its calculus the knowledge that in the event of the creation of a large enough liability the firm's shareholders are free to escape the full cost of this liability and to put it instead to the state. The shareholders can often incur this large liability without the advance approval of the state. The state, as we have just pointed out, will become the residual claimant of the firm, or, in this case, the party responsible for bearing most of the loss. But the holders of the firm's stock decide the investment strategy of the firm with an eye claim against the operating corporation.
only to the profits or losses that will be earned on the stock. The shareholders of the firm are cognizant of the limited liability that exists for their shares. Consequently the shareholders may be disposed to pursue an investment and operating strategy that is not in the interest of the community as a whole. The shareholders will pursue this risky strategy precisely because the shares can earn the return to the strategy while leaving the state to bear the risk.

The state casts its shadow over management calculus, therefore, not because the state threatens to intervene and confiscate any of the corporation's profits and not because the state will intervene in a controlling or restrictive fashion in response to some particular industry behavior. Rather, the state casts its shadow precisely because it has implicitly agreed to bear a portion of the firm's costs while simultaneously ceding to the shareholders the prerogative to make the investment and operating decisions of the firm.

We know from experience that this conflict of interest can lead to significant costs for the state. An important example of this conflict can be found in the crisis facing the U.S. savings and loan (S&L) industry. In 1933 the U.S. instituted a deposit insurance program making explicit its willingness to cover a bank or an S&L's liability to its depositors in the event that the investment losses of the S&L exceeded the capital. The potential for a conflict of interest between the shareholders of the banks and the state as insurer has long received some early attention when the legislation was originally passed--Emerson (1934)--and has recently become an important point of discussion and analysis--Merton (1978). For many years the circumstances that would lead to a conflict of interest between the shareholders of a bank or an S&L and the state as insurer did not arise,
at least not on a nationwide scale. However, in recent years interest rate volatili
and increasing bank deregulation and competition in the U.S. created the con
ditions for such a conflict of interest, and many banks and savings and loans therefore pursued an extremely speculative investment program. In his analysis of the dangers facing the insurance system, economist Ed Kane (1985; p. 21) noted that "many deposit institution managers voluntarily embraced unregulated forms of portfolio risk as a way to increase the anticipated return on equity capital paid by their firm. To increase their prospective lending margins, deposit institution managers made riskier loans and financed these loans in a riskier fashion. They spread their earnings over a smaller equity base and funded their holdings of assets with liabilities that promised to roll over on average well before the assets matured." Precisely because the incentives to pursue this type of strategy increased over the past two decades arose due to other changes in the banking environment—most notably the increased volatility in interest rates, it is impossible to determine precisely how much of the losses of the bankrupt S&L’s now being assumed by the government insurance system is due to the extra risk-taking on the part of the S&L’s and how much is due to other causes. The total cost of the bailout, however, already threatens to exceed $150-200 billion.

The Corporation’s Responsibility to the State--a Matter of Business

The inherent conflict of interest between the shareholders of a firm and its creditors is regulated in a variety of ways and these ways give us some clues to possible tools with which we can also regulate the conflict of interest between the shareholders, as the management of the firm’s assets, and the state, as the residual claimant. These tools often take the form of
covenants or provisions written into the debt contract that restrict or constrain the firm's investment and operating decisions or its financial transactions.

The first type of covenant included in private credit agreements permits the creditors to monitor standard parameters for the firm's operations and require that the firm maintain these parameters within certain bounds. This can serve to prevent the shareholders from exploiting the conflict of interest in their favor since it prohibits effectively the actions that might benefit them at the expense of creditors—Smith and Warner (1979). These restrictions take a standard form, mandating the maintenance of given working capital requirements and key financial variables. In credit contracts designed to finance a given project the specified conditions may become very specific, including provisions about the decisions to complete, for example, a construction project. In the case of limited partnerships for oil exploration the covenant's restrictions may extend to the general partner's ownership of other territories and the number of wells to be drilled—Wolfson (1985).

These types of covenants also provide the creditors with an early warning signal about important changes in the firm's investment program and about its performance. It is also true that the interest rate charged by the lender may depend upon the stringency of the covenants included. Depending upon the results of the negotiations the lenders will feel a greater or lesser degree of security in the investment and will adjust the interest rate accordingly.

A second class of covenants invoke the services of a third party to the transaction. In many cases the third party is an insurance company that agrees to cover a certain standard business risk or basic liability. The
requirement for insurance serves several purposes. First, it limits the degree to which shareholder decisions will drastically increase the riskiness of the lender's claim on the firm. Since the insurance company will cover the losses of the firm under certain events, the lender does not have to worry as much about the danger of these events nor about the probability that they will occur. Second, the insurance company usually has a set of procedures for certifying and ranking the risks that the firm undertakes. The insurance company is more efficient at assessing and regulating the types of risks to which its insurance business is targeted than would be the creditor. Finally, the insurance company prices the risks that the firm is assuming, and by doing so the insurance company effectively forces the shareholders to bear the full costs of those risks. This helps to resolve the conflict of interest. The shareholders bear the full cost of the risks and also enjoy the extra profits that would flow from assuming them, and therefore the decisions made by the shareholders are more likely to correspond to those decisions that maximize the value of the firm as a whole.

A similar type of covenant included in many credit contracts requires as a condition of the loan that the firm procure a given set of services related to its line of business. For example, loans used to finance the construction or purchase of large shipping vessels are usually accompanied by the requirement that the ship be drydocked periodically. The drydocking company performs standard maintenance services according to a pre-agreed schedule and certifies to the creditor that the services have been performed. This provision assures the creditor that the corporation operating the ship is maintaining the value of the physical assets, i.e., that they are not effectively liquidating the firm out from under the
creditor. The requirement that a third party contract to perform the services is important to creating the proper incentives.

Other cases of third party involvement in credit contracts include provisions for certification by accountants--Watts (1977)--and the negotiation of long-term contracts for the purchase of supplies or for the sale of output--Parsons (1989).

The third class of covenants restrict the shareholders' rights to the disposition of the firm's assets. The restriction written into the contract may appear to be rather vague, simply requiring, for example, that the firm not "otherwise than in the ordinary course of business, sell, lease, transfer or otherwise dispose of any substantial part of its properties and assets,...any manufacturing plant or substantially all properties and assets constituting the business of a division, branch or other unit of operation." In other cases the specific asset is mentioned and the lender obtains a lien against it. The lender may choose not to restrict the disposition of the physical assets directly, but may instead restrict the firm's right to distribute its cash earnings to shareholders. This restriction may be written directly, as in a dividend restriction--Kalay (1982)--or it may involve conditions applied to the payment on the debt that are a function of the firm's earnings, as in a sinking fund--Myers (1977).

Each of these types of agreements are negotiated in order to regulate the stockholder-bondholder conflict of interest. They are used to protect the bondholder, but as has often been pointed out in the literature the imposition of such restrictions is also in the interest of the stockholders, ex ante. This is because the restrictions raise the total expected value of

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the investment decisions made by the shareholders, and the contracts can be written so that the shareholders share in this benefit.

Comparable types of controls and provisions could and should be used to protect the state's liability and to regulate the stockholder-state conflict of interest. Our concern here is not with the classical justifications for state intervention into a market economy. Our concern here is with the proper management of a state liability that will exist regardless of the level of state regulation of the economy. We are not here advocating restrictions on the operations of the private firm because the political process can provide a more optimal choice of resource allocation. Instead, we are concerned with protecting the financial interests of the state and the community given a public policy decision to operate the industry through private corporations. When the public policy decision is made in favor of private corporations, the state nevertheless has assumed a liability. This liability should be properly managed. The implicit contract written between the state and the limited liability corporation should be augmented with the same types of covenants, indentures, and risk pricing mechanisms that are a standard business practice for other financial liabilities. Only with the appropriate corresponding covenants would it be prudent to incur the liability, that is, to charter or to privatize the corporation. These covenants are not a contradiction with the concept of a private corporation, anymore than are the covenants one finds in a privately negotiated debt contract; rather they should be seen as a component element augmenting the private corporation.

Although the general necessity for such covenants and controls to protect the state is not yet widely recognized, there are several cases in which the potential size of the state's liability has become a public policy
issue and has forced various policy makers to grasp at solutions of this type. Proposals currently circulating to help resolve the Savings and Loan crisis in the U.S. are a case in point. The deposit insurance granted by the government has for a long time been accompanied by a de facto form of restriction on the types of investments that an S&L can make. These restrictions are similar to the restrictions imposed in private credit agreements and serve the same purpose, although in this case it has been implemented through the regulatory agency. For many decades these controls successfully limited the riskiness of S&L investments. Unfortunately, with the gradual development of a deregulated banking system and with growing financial innovations, the regulatory powers of the agency proved inadequate to the task at hand, and many S&L's have in recent years been able to invest in a more speculative portfolio.

Many advocates of reform for the insurance system have proposed therefore a second form of control: a risk related insurance pricing structure that would implement the advantages mentioned above for insurance provisions in debt contracts. By making the premium payed contingent on the degree of risk of the S&L's investment portfolio, the costs created by that risk are imposed once again on the shareholders of the S&L.

Another type of device has also been proposed, one that invokes the use of a third party as is done in private credit agreements. This proposals involves requiring the sale by the S&L of a distinct type of liability that would be subordinate to the deposits and that would be distinct from the shareholders. The holders of this liability would have an interest in the security of the S&L's portfolio in much the same fashion as the U.S. government insurance corporation. The intent of this proposal is to create a class of private investors that would have interests that
coincide with the state's and who would therefore defend the state's interest--Avery, Belton, and Goldberg (1988). It is also hoped that the price of these obligations would be a public signal of the dangers being created by a given S&L's investment strategy. This class of investors would presumably act to block any recklessly risky strategies, but, being distinct from the state, would not pursue a public policy that was guided by non-financial concerns.

Similar types of tools could be used to regulate and mitigate the shareholder-state conflict of interest in other industries. For example, as we have illustrated, in some industries the dangers of environmental contamination, land reclamation, or of health disasters are significant. It is possible to require of any manufacturing firm involved in such an industry that it satisfy various covenants or constraints on its operations and financial transactions. It is possible to require that in the process of the firm's operation that it contribute to a sinking fund that will pay for the reclamation or clean-up of the land, just as other firms contribute to a sinking fund to repay their debt obligations. Alternatively, the firm could contract ex ante with a third party to guarantee the clean-up or reclamation of its territory. The state need only certify that the third party contract specifies a level of service or a guarantee of cleanup that meets national standards. The third party will arrange with the corporation the proper pricing, the necessary financial arrangements, and the appropriate monitoring of the firm's operations. Alternatively the state could require that the manufacturing firm purchase adequate liability insurance, specifying the type of insurance and the types of damages that must be covered. Finally, it would be perfectly reasonable for the state to set limits on the dividend policies of the firm in order to guarantee that
cash remains within the firm until such a time as the completion of the firm's obligations to the state and surrounding community are properly and completely discharged. These dividend restrictions should not be set so as to reduce the profitability of the firm; but merely to guarantee that the cash remains in the firm until these other obligations are settled. From a financial perspective such a restriction does not lower the value of the firm, nor does it represent a limiting of the return to the shareholders. To repeat, this form of restriction is common in private debt contracts--Kalay (1982)--and serves the interests of both the creditor and the shareholder, as do the other covenants and restrictions.

Conclusion

The privatization of a nationalized corporation is often represented as a means by which to remove the state from influencing the management decisions of a corporation. Both proponents and opponents of privatization often phrase society's choice between the private and the nationalized corporation as a choice between a market calculus and a political calculus to guide industry policy. For example, Vickers and Yarrow (1988; p. 27) write of public ownership that

Compared with private ownership, the most obvious differences in the relationships between managers and their immediate principals arise from the facts that (a) the principals do not typically seek to maximize profits, (b) there are no marketable ordinary shares in the firm, and hence no market for corporate control, and (c) there is no direct equivalence to the bankruptcy constraint on financial performance.

Opponents of privatization in a particular industry point out the problems of monopoly or other factors that disqualify a purely market calculus, and they identify public ownership as a means for bringing the decisions of the company in line with those that maximize the common welfare. Proponents of
privatization point to the discipline placed on managers by competition in the private marketplace, and they point to the lack of a similar discipline by the public officials responsible for a publicly owned firm.

Is this actually the choice facing us? When we privatize a formerly publicly owned corporation, will the management’s calculus be independent of considerations about the size of the state’s pockets or the various political pressures facing the state regarding the business of the firm? Is the choice of a private ownership or public ownership simultaneously a choice between a market and a political calculus?

In this paper we answer that it is not. The privatization of a formerly nationalized corporation should not be interpreted as having removed the influence of the state from the policy calculus of the industry. The privatization of the firm does refashion the state’s relationship to the corporation in important ways, but it does not in fact exclude the state. It is important not to abstract from the new channels through which the state impacts the industry’s policy calculus if we are to correctly assess the welfare consequences of the change in relationship brought about by the privatization. Unfortunately precisely such an abstraction is common in the economic models of privatization.

We show in this paper that an inherent feature of the private corporation is the residual liability that the state will, under certain circumstances, be forced to bear. As is true for all other claimants to the firm, there exists an inherent conflict of interest between the shareholders and the state. It would be better to recognize this liability at the outset and to institute the types of controls on the behavior of the firm that will make the shareholders less likely to exploit the conflict of interest at the cost of the value of the firm as a whole.
There is an oft quoted parable about the dangers of restricting property rights: "Give a man the secure possession of a bleak rock, and he will turn it into a garden; give him a nine year lease of a garden and he will convert it into a desert." The parable is a good one, and the lesson underlies the modern movement in favor of privatization. It deserves, however, to be complemented with a word of caution about the type of property rights known as the limited liability corporation. In modern times there exists a danger in giving a corporation the secure and unrestricted possession of a bleak rock. Even if within a given time they transform it into a garden, it may be eventually discovered that the garden had been produced with the aid of toxic chemicals or dangerous radiation. When the corporation dissolves the society may find itself the owners of an uninhabitable rock, impossible to ever plant again and deadly to trespass or costing billions of dollars and thousands of lives to reclaim. Society will once again be left to ponder the riddle: who is the residual claimant of the limited liability corporation?
References


